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Notes on Hospital Obstetrics.

BY

CHARLES JEWETT, A. M., M. D.,  
PROFESSOR OF OBSTETRICS IN THE LONG  
ISLAND COLLEGE HOSPITAL, BROOKLYN.

REPRINTED FROM

The New York Medical Journal  
*for November 21, 1885.*







## NOTES ON HOSPITAL OBSTETRICS.\*

By CHARLES JEWETT, A. M., M. D., BROOKLYN,  
PROFESSOR OF OBSTETRICS IN THE LONG ISLAND COLLEGE HOSPITAL.

ONE hundred consecutive confinements at the Long Island College Hospital furnish the material for the greater part of these rambling observations. Seven cases of abortion, however, scattered through the same period, are of some interest, and, before entering upon the study of the term labors, I will state in brief detail the treatment pursued in abortions. All fell in the second or third month. All were treated by immediate removal of the secundines. Of the seven patients, three had high temperatures on admission, with putrid secundines. Another was extremely anæmic from haemorrhage, and her condition was further complicated with delirium tremens. In all the uterus was immediately evacuated substantially as follows:

The patient was placed in the latero-prone position and the cervix exposed by means of Sims's speculum, and steadied with a volsella. First the vagina and then the uterus were thoroughly cleansed with a douche of the bichloride solution, 1 to 1,000. The secundines, if separated, were then removed with a uterine dressing forceps, and the cavity was curetted with the small dull curette. If the ovum was

\* Read before the Medical Society of the County of Kings, September 15, 1885.

still partially adherent, it was first detached with the curette. The cavity of the uterus was finally irrigated a second time with bichloride solution and a soft iodoform pencil deposited therein. In the febrile cases the temperature promptly declined, and all pursued a favorable course, the patients being discharged in from five to ten days.

Sims's speculum has few more important uses than in the treatment of abortion. The detached ovum is extracted by the above-described method with almost as much ease as it could be picked up from the floor. The facility of removal is in striking contrast with the painful and awkward digital method of extraction.

The immediate evacuation of the uterus is demanded in the event of sepsis or much haemorrhage. Even in the absence of these conditions I have generally preferred the immediate operation, including separation with the curette, when the ovum had clearly become a foreign body. I have seen no evil results from this course, while delay may expose the patient to a sepsis which later evacuation is powerless to arrest, to say nothing of the evils of haemorrhage. The ordinary small dull curette answers the purpose, and has the advantage that but little dilatation is required. I have rarely used any other. The important point, when interference is practiced, is to operate if possible while the tissues of the ovum are still fresh, and to leave the uterus completely empty and aseptic. The radical treatment of abortion and the use of the Sims speculum were advocated several years ago by Dr. Skene.

The one hundred term-confinements were conducted in surroundings involving more or less septic exposure. The obstetric wards were in the oldest portion of the building and in immediate proximity with the surgical wards of the hospital. The obstetric interne was also on general medical duty, and a certain number of students and nurses were

admitted to witness the labors. Despite the unfavorable circumstances, no epidemic of fever prevailed. No two consecutive confinements were followed with serious fever, and the total number of cases that could be classed as uncomplicated puerperal septicæmia were only seven. In this number there were three deaths.

In several cases circumstances pointed clearly to the belief that the poison was conveyed by the attendants on the labor, and not by the atmosphere. Atmospheric infection, I am disposed to think, is the exception and not the rule. In the majority of cases puerperal sepsis must be attributed to the physician or nurse in attendance during the labor. Cleanly surroundings, however, are of course indispensable to the cleanly conduct of the labor.

Our antiseptic practices of the last year have been somewhat simplified. They consist mainly of measures addressed to the scrupulous cleanliness of everything that is brought in contact or proximity with the passages, particularly during labor. Antiseptics are often indispensable to this end, especially to the aseptic cleanliness of hands and instruments. Vaginal injections are not used in puerperal patients for prophylactic purposes, except when specially indicated. The usual lochial guard, however, is kept wet with the bichloride solution for the purpose of promoting an aseptic condition of the external genitals.

The lying-in department has within a few weeks been transferred to new quarters in the wing recently erected. It is wholly cut off from direct communication with other portions of the hospital buildings. It is accessible therefrom only through the open air. The wards are ranged on either side of a central corridor, and are provided with ample ventilation. In the convalescent wards and waiting-room pure air is admitted by a double system of flues, one for heated and one for cold air. The foul air is removed

by flues communicating with a central upcast shaft, in which a strong draft is maintained the year round by means of a steam stack. Transom-windows add still further to the ventilating appliances, and all the incoming currents are regulated with reference to proper distribution so as to break up the entire volume of air in the room. A room for the isolation of fever patients is located in a remote portion of the wing.

All the wards have been constructed with a view to make them proof against the accumulation of hospital miasm. The walls and ceilings are finished with Keen's cement, and the floors are of concrete, painted. The wood-work is of the plainest kind, and the grain well filled. Since the walls and floors are like stone, in addition to the usual means of disinfection the wards may be flushed with a hose. A steam cylinder, which can be charged from the engine-boiler, is provided for disinfecting the bedding by high temperature.

Passing now to the analysis of the term confinements, the nationalities of the mothers were chiefly Irish, Swedish, and Americans of foreign extraction. The number of single women was forty. Fifty-six women were confined for the first time, forty-four were multiparae. The youngest mother was seventeen years old. Of aged primiparae there were six of ages ranging from twenty-nine to thirty-eight. All were delivered without artificial interference, and the average duration of their labors was a little below the average in the younger primiparae. These cases prove only that dystocia does not always befall this class of parturients.

An unusually large proportion of maternal abnormities was encountered. There was one case of simple flattened pelvis, one of funnel-shaped or male pelvis, one kyphotic pelvis, and two cases of cancer of the cervix.

As there was one twin birth, one hundred and one children were born. Of this number, ninety-three presented by the vertex. There were four breech cases, two cross births, one head and hand, one head, hand, and funis presentation.

The proportion of vertex presentations conforms nearly to the usual average, which is generally stated at about ninety-six per cent. Only fourteen per cent. of the vertex cases are recorded as occipito-posterior positions. Since nearly one half of the patients, however, were more or less advanced in labor on admission, the records of position are inexact.

Seventy-seven labors were accomplished solely by the natural powers. There were thirteen forceps deliveries, three manual extractions in breech births, three cases of podalic version, one delivery with the blunt hook (a breech case, the child dead), one by craniotomy (child dead, deformed pelvis), one Cæsarean section, one laparo-elytrotomy. (The laparotomies will be found elsewhere reported.) The average weight of the children in the forceps cases was nearly eight pounds. Thus the child was an element in the dystocia.

In forceps operations the aim has been to deliver with a minimum amount of force. Probably in none of the above-mentioned cases did the traction force exceed fifty pounds. To deliver with the least possible force, three things are necessary :

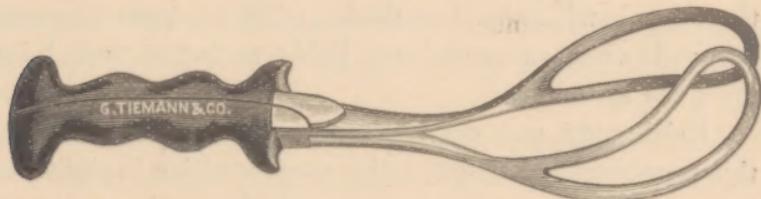
1. Time. It is often possible to coax the head along very slowly with moderate traction when a rapid delivery would involve a great expenditure of strength and much violence to the mother. It is a law of mechanics that the resistance which a moving body meets with increases as the square of the velocity. This law is not wholly inapplicable in the forceps operation.

2. The previous correction, when possible, of malpositions of the head. This is not always possible.

3. Axis traction—in other words, the application of the force in the axis of the passages. Misdirection not only wastes force, but, worse than this, the waste force is expended in doing harm. The axis-traction forceps of Tarnier and its modifications offer great advantage in many cases of high operation. In these instruments the extracting force is applied in the axis of the forceps blades, and the axis of the blades lies constantly parallel with the axis of the passages as the head descends. The ordinary forceps should do the same thing. This can not be accomplished by mere traction upon the handles, certainly not with forceps having a marked pelvic curve. It may be done by conjoining with traction, applied at the handles by one hand, a downward pressure with the other hand upon the shanks near the lock.

The operator is often in doubt as to the precise direction of the pelvic axis. I am not sure to whom I am indebted for the following useful hints for solving this difficulty and guiding the line of traction. The symphysis pubis is substantially parallel with the axis of the brim. The direction of the symphysis may be readily determined by laying the finger along its internal surface or by placing the finger-tips externally over the extremities of the symphysis. This affords a guide to the line of traction, which deviates but little from the axis of the inlet till the occipital pole approaches the pelvic floor. As the head glides along on the floor of the pelvis the forceps handles should sweep forward rapidly enough to make the anterior margins of the blades hug the ischio-pubic rami as closely as possible without crushing the intervening soft parts. These rules serve for general guidance in the use of forceps, but may of course require modification in individual cases.

In connection with this subject I submit a forceps which has been made for me by the Messrs. Tiemann & Co. It is designed to meet the requirements of modern obstetrics in the matter of cleanliness. The only important new feature is the construction of the handles. The handles are of hard rubber, smoothly polished, and they wholly envelop the metal. As the rubber is vulcanized upon the metal, there are no crevices for the lodgment of filth. With the exception of the handles, the general model of the instrument is similar to the Elliot forceps, but the shanks are stronger and the lock is a half Smellie.



In the seven breech extractions none of the children were lost except one, which was dead for two or three days before the admission of the mother. The method followed in breech deliveries is as follows: A forceps is always within reach of the hand. An assistant stands ready to apply pressure over the fundus at the critical moment—the delivery of the head. Anaesthetics are generally withheld to secure the full use of the expelling forces of the mother. In order to the full dilatation of the passages preparatory to the delivery of the after-coming head, the pelvic extremity of the foetal ovoid is left intact—in other words, the extremities are, if practicable, allowed to remain flexed upon the abdomen, and the descent of the breech is not usually hastened by traction. Another reason for avoiding traction is the fact that the head and arms are liable to become extended if the trunk is dragged down. When traction becomes necessary in case of delayed or impacted breech, the

attempt is made to maintain the flexion of the head by means of external pressure applied over the abdomen by the assistant. In the expulsion of the trunk much depends on the prompt delivery of the arms. If manual extraction of the after-coming head is not readily accomplished with moderate force, the trunk of the child is carried up over the abdomen of the mother and the forceps applied to the head. Great reliance is placed on the forceps in difficult delivery of the after-coming head. The application is easy, and, once applied, failure is practically impossible where a living child is possible by any method of extraction. On the other hand, manual methods in difficult cases frequently fail, and, when successful, are liable to inflict fatal injury upon the spinal cord.

Episiotomy was done in one case. In rare instances this procedure is believed to be good practice in rigid perineum where extensive rupture of the perineal muscles would otherwise be inevitable. At the moment when the equator of the head is about to escape from the vagina, a narrow-bladed, blunt-pointed knife is laid flatwise between the head and the cord-like constricting ring just within the vaginal outlet. The incisions are made an inch or more from the median line, and should not much exceed half an inch in length and an eighth to a quarter of an inch in depth. I prefer to make the incisions during a pain, since they can be more readily managed while the ring is tense.

The compress and T-bandage suggested by Dr. Skene for support of the pelvic floor after labor, in certain perineal injuries, will be found useful after episiotomy. It should be understood that this operation is not advisable except where other measures are inadequate.

With the use of Credé's method the placenta was in the majority of cases expelled in from fifteen to twenty minutes after the birth of the child. The longest placental

stage recorded was forty-five minutes. In delayed third stage, injection of the placenta through the cord has been found a useful measure, though by no means invariably successful. This practice is not new, having been advocated by various writers since the early part of the present century. I use a small hard-rubber cannula attached to the syringe, though a common quill toothpick will answer the purpose. Cold water is injected through the umbilical vein, care being used to avoid injection of air. The effect of the cold water, when successful, is to provoke a vigorous contraction, usually attended with prompt expulsion of the placenta. Manual extraction in retained placenta is avoided if possible, though little danger is to be apprehended if the hand is aseptic.

Lacerations at the vaginal orifice of some grade occurred in thirty-six cases. This number includes wounds of every degree beyond mere nicking of the hymenal orifice or of the fourchette that could be detected on critical examination. All but three occurred in first labors. Eleven of this number were not of sufficient extent to involve the muscular structures of the perineum; none extended through the sphincter ani. The proportion of perineal injuries may seem large, yet I am disposed to think it is little larger than would be found in general practice were the same opportunity afforded for careful examination. The number was no doubt increased by the fact that in a certain proportion of emergency cases brought on the ambulance the head was rapidly expelled before aid could be rendered. The methods practiced for the protection of the perineum are chiefly preliminary dilatation, delay, and delivery of the head by its smallest circumference.

All except the most superficial rents were immediately closed with sutures. The single suture of Alloway was tried in two or three cases, but was unsatisfactory and was

abandoned. No method can meet the indications which does not hold the sundered muscular structures in apposition throughout.

One perineal laceration extending into the sphincter ani united without sutures, forming a thick and firm muscular body. This patient was delivered fourteen hours before admission. On examination after she entered the hospital, the torn surfaces of the perineum were found cemented together, and therefore no sutures were applied. The case is of interest because very exceptional, and is not referred to as affording a guide for the management of perineal ruptures.

Of fifteen multiparae submitted to critical examination before labor, old perineal injuries sufficient to impair the function of the pelvic floor in some degree were found in nine. In four the damage to the muscular structures was out of proportion to the apparent injury, the mucous membrane and skin having remained nearly or quite intact, while the muscles had been more or less extensively sundered.

In twenty-eight primiparae in whom the condition of the cervix at the date of discharge was recorded, lacerations were found in eighteen. All but seven of this number were of slight extent. These examinations, however, were made about ten days after labor, and probably all but the deepest fissures became insignificant by the time involution was complete.

In the one hundred mothers there were six deaths. One woman died of peritonitis and exhaustion three or four hours after delivery. She had been brought in after four days' labor with epithelioma of the cervix and a laceration opening into Douglas's pouch. The child was dead, and the breech, which presented, was fixed in the grip of the unyielding cervix. Another patient with cancer of the cervix died of peritonitis after Cesarean section. This case has been elsewhere reported.

One death occurred from prolonged labor with deformed pelvis. This woman was admitted in a state of collapse, with a pulse of 180, after being about four days in labor, the head arrested at the pelvic outlet. The child was dead and putrid. Delivery was accomplished by craniotomy. The thorax and abdomen required to be punctured before the trunk could be delivered, owing to distension from putrefactive gases. The right vaginal wall was the seat of an extensive slough from long-continued pressure of the fetal head. The woman died soon after delivery. The remaining three deaths were due to puerperal fever.

In fifty-six patients the temperature did not reach 100° during the post-partum week. There were four with moderate septic fever who recovered. The recoveries were due in large measure to antiseptic irrigation of the passages, a sharp decline of the temperature invariably following the douche, while in the three fatal cases of fever the douche made no impression on the temperature.

The remaining abnormal temperatures were due in some cases to pre-existing disease, as rheumatism, phthisis, etc.; in others to malarial poisoning, to mastitis; in several instances to emotional disturbance, and doubtless in a number of cases to slight transient absorption of decomposing lochia.

A case of labor in a diabetic subject is worthy of special mention. The woman was single and pregnant for the first time. She was delivered by the high forceps operation after twenty-six hours of ineffectual labor, the child weighing eight pounds and eight ounces. Chloroform was badly borne. She went into partial collapse after delivery, and was rallied with difficulty.

This patient had more or less fever for two weeks after labor, the temperature several times mounting to 103°. A partial laceration of the perineum, which had been closed

with sutures, failed of union, sloughs occurring on both sides of the rent. She had phlebitis of the superficial veins of the lower extremities. The seat of the punctures on the thigh, where fluid extract of ergot and dilute ammonia-water had been injected hypodermically, formed phlegmons, in two or three of which sloughs separated, exposing the muscular structures.

Dr. Dickinson, suspecting diabetes from the appearance of the wounds, confirmed the diagnosis on examining the urine for sugar. This case affords a good example of the dangers to which a diabetic woman is exposed in parturition. Sugar occurs physiologically in the urine of most women during the latter weeks of pregnancy and during lactation. Blot found it in half the cases examined during pregnancy. Dr. Angus Macdonald ("Ed. Med. Journal," August, 1881) examined the urine for sugar in thirty-four puerperal women and found from one to eight per cent. in all. This physiological glycosuria is intimately associated with lactation.

De Sinéty showed that the amount of sugar in the urine of puerperal women could be increased at will by abruptly suppressing the flow of milk. Barnes says the sugar disappears from the urine when the production and yield of milk are evenly balanced.

Diabetes as a complication of pregnancy and labor is rarely mentioned in the text-books. Dr. Matthews Duncan ("Obs. Trans.," London, 1882, p. 256), in a paper cited by Playfair, relates several cases. A large proportion of the children die before birth. Hydramnios is more frequent than in other gravidae. But the principal dangers to this class of parturients are those of collapse after labor and their inability to bear well the traumatism of parturition.

Of the children, all but one were single births. Of the one hundred and one children, forty-five were females and fifty-six males. The relation of the fetal pulse-rate to the

sex was by no means constant, but in a large proportion of cases where the foetal pulse before birth was much above 140, the child was a girl or a feeble male; where much below 140, the sex was generally male.

Ninety-four children were believed to be strictly full-time births. Of these, the average weight was seven pounds and one third, excluding the twins. The largest child weighed eleven pounds. The average length of the full-time children was a fraction less than nineteen inches. The length of the new-born child affords a convenient means for estimating the stage of development. The measurement may be roughly determined, even *in utero*, as a ready method of estimating the stage of gestation. The length of the fetal ovoid can generally be readily measured. Double this measurement gives very nearly the total length of the foetus.

A limited number of observations were made upon the temperature of the new-born child. The average rectal temperature in twenty infants at birth was 96.4°. On the second day the average was 98.5°, on the third 98.7°. The lowest temperatures occurred in puny and in partially asphyxiated children. The lowest noted at birth was 94°.

Four children were still-born, all dead before the admission of the mothers. One died from prolonged labor obstructed by cancer of the cervix, one from prolapsus funis, one from ante-partum haemorrhage, and one child was dead and putrid from prolonged labor with narrow pelvis.

But one foetal abnormality occurred. This was a case of atresia ani. The obstruction was a membranous septum which was punctured and the opening dilated by tearing. Subsequent dilatation was maintained by the mother's finger used as a bougie. The child was thriving when it left the hospital. A small glass speculum was found of great service in determining the extent of the occlusion and in

puncturing the membrane without injury to surrounding structures. The speculum was improvised by cutting off an inch from the open end of a test tube and rounding the cut edges in the flame of a spirit lamp.

A modified Credé's treatment has been for some time in use for the prevention of ophthalmia of the new-born infant. A few drops of a five-grain solution of nitrate of silver are instilled into the eyes of every child immediately after birth. No cases of ophthalmia have occurred since the adoption of this practice, while they were not wanting before.

In conclusion, my acknowledgments are due the house staff for intelligent and untiring interest in the clinic, and to Dr. R. L. Dickinson, clinical assistant to the chair of obstetrics, for valuable aid in securing accurate observations and for rare skill and judgment in directing the service.





# The New York Medical Journal,

A WEEKLY REVIEW OF MEDICINE.

PUBLISHED BY

D. Appleton & Co.

EDITED BY

Frank P. Foster,

M. D.



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